

1 ABSTRACT

2 A resonant optical modulator comprises a transmission fiber-optic waveguide, a
3 circumferential-mode optical resonator transverse-coupled thereto, a modulator optical
4 component transverse-coupled to the circumferential-mode resonator, and a modulator control
5 component. A control signal applied to the modulator optical component through the modulator
6 control component alters the round-trip optical loss of the circumferential-mode resonator,
7 thereby altering the transmission of a resonant optical signal through the transmission fiber-optic
8 waveguide. The modulator optical element may comprise an open waveguide or a closed
9 waveguide (i.e., resonator). The resonator round-trip optical loss may be altered by altering the
10 optical absorption/scattering of the modulator optical component, by altering the amount of
11 optical power transfer between the resonator and the modulator optical component, or by altering
12 an optical resonance frequency of a resonant modulator optical component.

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